Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) A plurality of target immunogenic peptides of a target protein, said target peptides which produce a disease ~~or condition~~ specific immune response in a host, wherein the target protein is causative of, or associated with, ~~a~~ the targeted disease ~~or condition~~, and said peptides comprise the following structure:

(a) from 5 to 10 amino acids in length;

(b) an amino acid sequence which is identical to a contiguous amino acid peptide region of the sequence of a protein designated the target protein;

(c) a net hydrophilic structure as determined by the amino acid sequence of the peptide, said structure located on the surface of the target protein;

(d) an amino acid ~~net~~ sequence homology of 50 percent or less as compared with contiguous amino acid sequences of a ~~part of a~~ non-target ~~comparative~~ protein wherein ~~the comparative protein matches the sequence of the target protein to same extent~~ the non-target protein was selected from a database by comparing the target peptide to a plurality of non-target proteins;

(e) an amino acid sequence wherein no more than three contiguous amino acids are identical to contiguous amino acids of ~~the part of~~ the non-target protein ~~matched for overall homology~~; and

(f) an antigenic profile which elicits an immune response specific for the target protein as determined by results of immune cell proliferation assays or immunoassays of targeted disease or condition positive biological fluids compared to disease or condition negative biological fluids.

2. (previously presented) A pharmaceutical composition comprising a plurality of immunogenic peptides of claim 1.

3. (previously presented) An immunogenic composition capable of inducing a mammal to produce antibodies specific for an epitope on a target protein, wherein the immunogenic composition comprises a plurality of peptides of claim 1.

4. (withdrawn) An immunoassay for a target molecule to determine if the molecule is present in biological fluid, said immunoassay comprising:

(a) contacting of peptide claim 1 with the biological fluid; and

(b) determining whether the peptide has complexed with an antibody present in the biological fluid from which the presence of the targeted molecule in the fluid is inferred.

5. (withdrawn) A diagnostic method for a disease or condition wherein a plurality of peptides of claim 1 are contacted to a microchip to detect a target protein that is causative of, or associated with, the disease or condition, said target protein causing specific antibodies to be present in a biological fluid, detection achieved by hybridization of antibodies in the biologic fluid to the plurality of peptides on the microchip.

6. (withdrawn) A molecule which is specifically reactive with a peptide of claim 1.

7. (withdrawn) A molecule which is specifically reactive with a reactive molecule of claim 6.

8. (withdrawn) The molecule of claim 6, selected from the group consisting of monoclonal antibodies or immunogenic fragments thereof, recombinant proteins and adhesion proteins.

9. (withdrawn) An immunoassay for a target protein, said immunoassay comprising:

(a) obtaining a molecule of claim 6; and

(b) determining whether the molecule complexes with the target protein of the peptide in a biological fluid.

10. (withdrawn) A diagnostic method wherein a plurality of targeted proteins are placed in a microchip to detect a microorganism, autoimmune disease, or allergy in a subject from which a biological sample is obtained, said microorganism, autoimmune disease, or allergy is detected by hybridization of targeted proteins to molecules in the biological sample.

11. (withdrawn) An immune cell which is specifically reactive with a peptide of claim 1.

12. (withdrawn) A method for identifying a peptide which functions as a highly specific antigen for a target protein, said method comprising:

(a) selecting amino acid sequences of peptides of from 4 to 100 amino acids in length by copying the amino acid sequence of parent protein wherein the sequence satisfies the criteria of steps (a) to (c) claim 1;

(b) synthesizing candidate peptides that have the sequences of step (a);

matches to the target protein." The results would be inspected to select non-target (comparative) protein specimens.

There is no mention of "polypeptides" in the application so the examiner's arguments on page 4 using this term cannot be addressed.

"Condition" and "net" are deleted. "Non-target protein" replaces "comparative protein."

Crossreactivity

Those of skill in the art would understand that the inventor is trying to reduce crossreactivity by use of non-target (comparative) proteins. (see specification page 2, lines 25-28).

> The reactivity of an antibody with nonhomologous antigens is referred to as *crossreactivity* In Chapter 6, we considered crossreactivity from the standpoint of antibodies; here, we shall briefly discuss crossreactivity in relation to antigens. At the antigen level, crossreactivitiy can occur because of antigen heterogeneity, determinant sharing, or determinant similarity (see Fig. 8.2)

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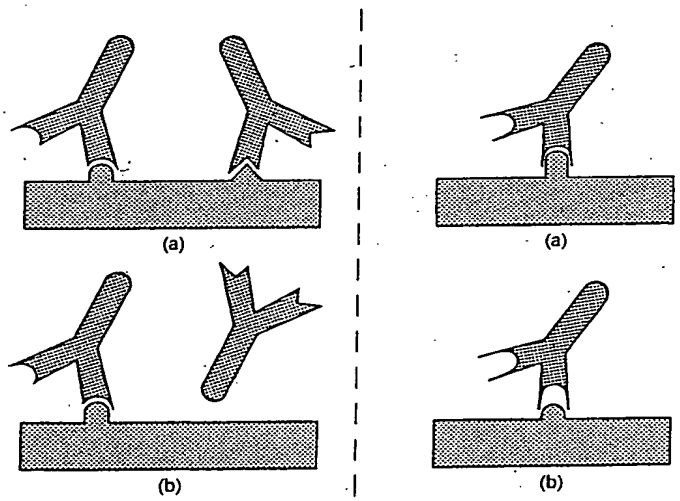

Figure 8.2. Two interpretations of crossreactivity. A and B are antigenic molecules of two inbred strains; the Y-like structures are antibodies. In the left-hand panel, molecule A has two determinants, one of which it shares with molecule B; there are separate antibodies for the two determinants. In the right-hand panel, molecule A has only one determinant; molecule B has a similar, but not identical, determinant, which the antibody fits only imperfectly.

Immunology, the Science of Self-Non-Self-Discrimination, Klein, 1982, John Weley & Sons, Inc.

(c) labeling the peptides at either the NH_2 or COOH end of their amino acid sequence with a detectable label; and

(d) testing by means of immunoassays whether the peptides are specific for the target protein.

13. (withdrawn) An imaging reagent comprising a molecule of claim 7 and a label.

14. (withdrawn) The imaging reagent of claim 13, wherein the label is radioisotopic and, upon binding to microorganisms or diseased tissues highlights the presence of the microorganisms or diseased tissues when scanned with a nuclear medicine scanner.

15. (withdrawn) The imaging reagent of claim 13, wherein the label is a paramagnetic label which, upon binding to microorganisms or diseased tissue highlights the presence of the microorganisms or diseased tissue when scanned with a nuclear magnetic resonance (NMR) scanner.

16. (withdrawn) The imaging reagent of claim 13, wherein the label comprises a water density label which, upon binding to microorganisms or diseased tissues highlights the presence of the microorganisms or diseased tissues when scanned with a CAT scanner.

17. (previously presented) An anti-microbial therapeutic construct comprising a plurality of peptides of claim 1.

18. (previously presented) The therapeutic construct of claim 17 further defined as comprising the peptides coupled to adjuvant molecules which enhances immunogenicity of the peptides.

19. (previously presented) The therapeutic construct of claim 17 further comprising neomolecules created by recombinant techniques comprising peptides with adjuvant molecular sequences which promote increased immunogenicity of the plurality of peptides of claim 1.

20. (withdrawn) An anti-microbial therapeutic construct comprising a nucleic acid molecule comprising a nucleotide sequence that encodes a peptide of claim 1, said nucleic acid molecule being administered to the cells of an individual and then expressed by the individual's cells as a protein or peptide for the purpose of auto-stimulation of the individual's immune system.

21. (original) A method of producing anti-microbial immunity comprising obtaining and administering an effective amount the construct of claim 17 to a mammal.

22. (previously presented) A desensitizing reagent comprising the plurality of peptides of claim 1, said reagent used to down-regulate a specific immune response administered to a host affected with a targeted disease:

(a) in initial doses too weak to up-regulate causing immune response the disease;

and

(b) incrementally increasing the dosage to induce immune tolerance to a specific antigen causing the disease thereby abrogating or ameliorating the disease process.